1   1. A method practiced at a gateway server connected to a Multicast

2   network and a Unicast network for adapting Multicast sessions on said Multicast

3   network in response to requests by a Unicast client on said Unicast network, the

4   method comprising:

5   accumulating directory information relating to Multicast sessions on said

6   Multicast network;

7   supplying said Unicast client with said directory information,

8   receiving a request at the gateway server from said Unicast client to adapt

9   sessions on said Multicast network, said request including information about at

10   least one Multicast session,

11   sending at least one message regarding said at least one Multicast

12   session to at least one address on said Multicast network.

1   2.   The method of claim 1 wherein said request to adapt sessions on

2   said Multicast network received at said gateway server comprises a request to

3   create a new Multicast session on said Multicast network, and wherein said

4   information about said at least one Multicast session comprises information

5   about said new Multicast session.

1   3.   The method of claim 2 wherein said sending messages regarding

2   said new Multicast session comprises announcing said new Multicast session

3   onto said Multicast network to a predetermined Multicast address for such

4   announcements.

1   4. The method of claim 3 wherein the Unicast and Multicast networks are

2   IP (Internet Protocol) Unicast and IP Multicast networks, respectively.

1   5. The method of claim 1 wherein said announcing said new Multicast

2   session onto said Multicast network comprises announcing said new Multicast

3   session periodically onto said Multicast network.

1   6.   The method of 1 further comprising authenticating said Unicast

2   client before supplying the Unicast client with the directory information.

1   7. The method of claim 6 further comprising authenticating said Unicast

2   client as being authorized to create a session.

1   8.   The method of claim 1 wherein

2   said request comprises a request to record a selected Multicast session

3   based on said directory information,

4   said information about said at least one Multicast session comprises

5   information about said Multicast session to be recorded, and

6   said sending at least one message comprises sending a message

7   containing information about the selected Multicast session to a recording server

8   connected to the Multicast network to record the selected session.

1   9. The method of claim 8 wherein said Unicast network and said Multicast

2   network are IP (Internet Protocol) Unicast and IP Multicast networks,

3   respectively.

1   10. The method of claim 8 wherein information in said request comprises

2   information about when to start and stop said recording.

1   11. The method of claim 10 wherein said selected Multicast session

2   comprises information in a plurality of media, and said request identifies the

3   media of the selected Multicast session to be recorded.

1   12. The method of claim 8 further comprising authenticating said Unicast

2   client before supplying the Unicast client with said directory information.

1   13. The method of claim 12 further comprising authenticating said

2   Unicast client as being authorized to record a session.

1   14. The method of claim 8 further comprising:

2   receiving a request from said Unicast client to access a recorded session;

3   sending a message to said recording server to retrieve said recorded

4   session;

5   receiving said recorded session; and

6   sending said recorded session to said Unicast client.

15.   The method of claim 1 wherein

said directory information supplied to said Unicast client comprises, for each session, a Multicast address and required bandwidth,

said request comprises a request to join a selected session based on

5   said directory information;

the method further comprising:

deriving an estimated available bandwidth for delivery of said selected session to the requesting Unicast client; and

when said estimated available bandwidth is at least equal to said required

10   bandwidth for said selected session, delivering said selected session to said Unicast client.

16.   The method of claim 1 wherein

said directory information supplied to said Unicast client comprises, for each session, a Multicast address and required bandwidth,

15   said request comprises a request to join a selected session chosen from said directory information,

the method further comprising:

deriving an estimated available bandwidth for delivery of a selected session to said Unicast client; and

20   when said estimated available bandwidth is less than said required bandwidth for a selected session, selecting a lower coding rate than said required bandwidth;

sending a message to a transcoding server connected to the Multicast network to rate-adapt the coding rate associated with said selected session to

25   said selected lower coding rate, thereby producing a rate-adapted selected session;

receiving from said transcoding server a first Multicast address to which

said rate-adapted selected session is transmitted;

joining said rate-adapted selected session on behalf of the Unicast client

at first address;

5   converting the address of the Multicast packets received at said first

Multicast address to a Unicast address of the Unicast client, and sending

Multicast packets received at said first Multicast address to said Unicast address

of said Unicast client; and

transmitting packets received from said Unicast client to said first

10   Multicast address.

1   17. The method of claim 16 wherein said Unicast and Multicast networks

2   are IP (Internet Protocol) Unicast networks and IP Multicast networks,

3   respectively.

1   18. The method of claim 15 wherein said request to join a Multicast

2   session is a request to join at least one group of a plurality of groups associated

3   with said Multicast session, each of said plurality of groups having an associated

4   Multicast address.

1   19. The method of claim 18 wherein each of said plurality of groups is

2   associated with a different media type.

20. The method of claim 16 wherein deriving an estimated available

bandwidth comprises:

transmitting a series of test packets to said Unicast client;

receiving an echo of said test-packets from said Unicast client; and

5   comparing said transmitted series of test-packets with said echo of said

series of test packets.